

the galvanometer amounting to  $-2/100$  volt, followed by a deviation of  $+2/100$  volt; it was then subjected to an excess of  $\text{CO}_2$ , which caused temporary intoxication, from which it afterwards recovered. Small quantities of  $\text{CO}_2$ , such as 4 per cent., exhibited to the leaf cause increased electrical effects, which are a galvanometric expression of increased chlorophyll action (see Fig. 2); that is, the more assimilation, the more the electrical sign of assimilation. The photographic records indicate dissimilative effects in the minus direction and assimilative action in the plus direction.

#### METEOROLOGICAL KITES IN INDIA.

THE India Meteorological Department has recently given in a number of its Meteorological Memoirs (vol. xx., part i.) "an account of the preparations made for determining the conditions of the upper air in India by means of kites." The Government of India, acting on a strong recommendation by the Royal Society, about three years ago sanctioned the inclusion of the exploration of the middle and higher atmosphere by means of kites and balloons as a part of the scheme of operations of the Meteorological Department. Two officers were deputed to Germany to study the methods employed by the Aeronautische Observatorium des Königlich Preussischen Meteorologischen Instituts. The first part of the memoir gives a description of the instruments employed, and the results obtained from the first preliminary ascents. The place selected for these was in Lower Sind, about six miles W.N.W. of Karachi, a mile from the sea and ten miles from the Hala Range on the west, forming the boundary between Lower Sind and Baluchistan.

The ascents were made in the last week of August and first fortnight of September, 1905, shortly before the withdrawal of the south-west monsoon current from Upper India.

In order to appreciate the results, it is necessary to bear in mind that during the wet monsoon in India an area of minimum pressure stretches from Upper India to the Soudan, in which pressure is absolutely lowest in Sind. The intensity and position of this varies considerably during the season. The observations were hence made in the south-west quadrant of this area of minimum pressure, where the lower cyclonic air movement is probably light and irregular, due to the obstructive action of hill ranges of moderate elevation.

The observations showed that a humid current (approaching saturation) obtained on the average up to an elevation of about 2500 feet (from about W.S.W.), and that above this was a very dry current from west with slight northing, the intermediate region of transition from the humid to the dry being probably less than 1000 feet in thickness. The accompanying table gives selected data from the two most satisfactory ascents.

The very dry current represents indraught from the Baluchistan plateau to the Sind low-pressure area, which, however, as a result of the presence of hills, entered it at a considerable elevation, exceeding on the average 2500 feet. The most remarkable feature is the large increase of temperature in passing from the lower humid current into the upper dry current, of  $4^\circ \text{C.}$  to  $7^\circ \text{C.}$  in amount, and of the comparatively slow rate of decrease for some distance above that plane of transition. Almost equally remarkable is the sudden and comparatively abrupt change of the relative humidity from saturation to values of 5 and 6 only. Mr. Blanford many years ago established that in drought years in North-Western India

Date of ascent	Elevation, metres	Temperature, $^\circ \text{C.}$	Humidity:		Wind direction
			Rel.	Absolute. Grams per cub. m.	
Aug. 28	Surface	28.6	70	19.5	S. 70 N.
—	795	21.1	100	18.2	"
—	1000	25.9	24	5.8	West with slight northing
—	1285	28.7	5	1.4	"
—	1380	27.3	6	1.6	"
Sept. 12	Surface	28.1	85	23.0	S. 60 W.
—	635	21.9	100	19.1	"
—	900	25.6	42	9.9	West with slight northing
—	1015	25.4	19	4.4	"

this dry current from Baluchistan descends to the level of the plains in Sind and extends southwards and eastwards to very considerable distances, and is an important factor in determining the intensity of the drought in North-Western India, and perhaps of conditioning it. Another point of interest is the comparatively rapid variation, even in short periods, of the lower level of this dry current. Mr. Field, who carried out the observations, says that "a nearly saturated stratum of air from the sea extended from the ground surface (10 metres above the sea) upwards to a level which rose from 500 metres on August 27, through 800 metres on August 28, to 1130 metres on August 31. From that day onwards until September 9 its limiting height was not reached by the kite, but probably exceeded 1000 metres. Its upper limit fell again to 600 metres on September 12."

The observations give valuable and interesting information of what may perhaps be termed an outlying portion of the south-west monsoon current. They suggest that the extension of the work will give most important information respecting the south-west monsoon circulation, and perhaps on the causes of the variation of the intensity and extension of the south-west monsoon rainfall, one of the great problems which for some time past has engaged the earnest attention of the Meteorological Department at the instance of the Government of India.

#### NOTES.

We deeply regret to announce the death, at the age of seventy-four years, of Mr. C. Baron Clarke, F.R.S., which took place at Kew on Saturday last, and, at the comparatively early age of fifty-two years, of Prof. H. Marshall Ward, F.R.S., which occurred at Babbacombe, Torquay, on Sunday last. Prof. Ward, who had been ill for some months, had filled the chair of botany at the University of Cambridge since 1895.

On August 20 there passed away at his beautiful country seat, Coles Park, near Buntingford, Herts, in his eightieth year, one who is well known to mineralogists as joint author with the late Mr. W. G. Lettsom of the "Manual of the Mineralogy of Great Britain and Ireland," and whose name will ever be linked with perhaps the finest private collection of minerals which was ever brought together in this country. Mr. Robert Phillips Greg as a young man took great interest in the fine collection which his father, a noted economist and antiquary, had purchased from the executors of its previous owner, Mr. Thomas Allan, F.R.S., and spent considerable sums of money in acquiring new specimens and bringing the collection up to date. After the publication of his "Manual" in 1858 he

appeared to take little active interest in minerals, and two years later, in 1860, the Allan-Greg collection was purchased by the trustees of the British Museum. For many years afterwards he still devoted himself to the study of meteorites, from both the astronomical and mineralogical points of view, until paralysis of the legs rendered it difficult for him to move about. The "Manual" referred to was published nearly half a century ago, and probably few mineralogists will realise that one of the authors has died so recently.

THE death of M. Alexandre Herzen, professor of physiology in the University of Lausanne, and author of many books dealing with physiology and allied subjects, is announced in the *Temps*.

*Science* announces the death of Prof. S. L. Penfield, head of the department of mineralogy in the Sheffield School of Yale University; also of Mr. G. W. Lehmann, chemist of the United States Government since 1878, and chief chemist of the Baltimore Board of Health since 1896.

THE death is announced from Tangier of M. Georges Salmon, leader of the French scientific mission to Morocco.

A MOVEMENT has been set on foot in Germany to raise a memorial fund for the benefit of the widow and children of the late Dr. Schaudinn, and an English committee consisting of Prof. Clifford Allbutt, F.R.S., Sir Michael Foster, F.R.S., Mr. Jonathan Hutchinson, F.R.S., Prof. Ray Lankester, F.R.S., Sir Patrick Manson, F.R.S., Prof. Osler, F.R.S., Mr. John Tweedy, and Prof. Sims Woodhead has been formed to cooperate with the German promoters of the scheme. Subscriptions may be paid to Mr. Adam Sedgwick, F.R.S., treasurer of the fund, New Museums, Cambridge, or direct to the Schaudinn Memorial Fund at Messrs. Barclay and Co.'s Bank, Cambridge.

A CONFERENCE of the International Geodetic Association will be held in Budapest on September 20 next, when, according to the *Temps*, the principal topics to be considered will be the accurate surveying of mountain chains subject to earthquake, with a view to ascertaining whether these chains are stable or whether they rise and sink, and the taking of measures of gravity so as to throw light upon the distribution of masses in the interior of the earth and upon the rigidity of the earth's crust. The drawing up of preliminary reports on these two questions has, says our contemporary, been entrusted to M. Lallemand, director of the general survey in France, and Sir George Darwin, K.C.B., F.R.S.

THE King of the Belgians has shown his practical interest in the study of sleeping sickness by offering a prize of 8000*l.* for the discovery of a remedy for the malady, and by placing a credit of 12,000*l.* in the Congo Estimates for the purpose of prophylactic research; he also recently received representatives of the Liverpool School of Tropical Medicine, and having heard their views as to the necessity of preventing the further spread of the disease, asked the school to submit to him a scheme of preventive measures. The King bestowed the Order of Leopold upon Prof. Ronald Ross, C.B., F.R.S., Prof. Boyce, F.R.S., and Dr. J. L. Todd.

FURTHER slight shocks of earthquake are reported from Valparaiso and Santiago; slight shocks have also been felt at Carcoar, twenty-five miles from Bathurst, New South Wales.

AN earthquake shock is stated to have been felt at 5.55 a.m. on Monday last at Matlock and other parts of

Derbyshire. The shock, which was very slight, was accompanied by a sound like distant thunder, and lasted three or four seconds.

THE Wellman Polar Expedition has been abandoned for the present, its leader having decided not to attempt the voyage northward this year on account of defects in the mechanical equipment of his airship. Mr. Wellman is to return to Europe in the middle of next month, and will leave a small party of men behind to guard the headquarters of the expedition.

A ROYAL Commission has been appointed to inquire into the lighthouse administration of the United Kingdom. The terms of reference are:—"To inquire into the existing system of management of the lights, buoys, and beacons on the coast of the United Kingdom by the three general lighthouse authorities, and as to the constitution and working of these authorities, and to report what changes, if any, are desirable in the present arrangements."

A HEALTH, Electrical, and Gas Exhibition is to be held at Portsmouth from November 5-27 next.

THE Latin-American Medical Congress will be held at Monte Video in January next.

THE fourth Portuguese Congress for the Prevention of Tuberculosis will be held at Oporto from April 4-9 of next year.

ACCORDING to the *Electrical Review*, an international competition has been organised by the Association des Industriels de France for the invention of a primary cell and a storage cell satisfying certain conditions. Both cells are to develop the maximum power or contain the maximum energy possible per unit of weight and bulk, and they must be free from risk of every description to the users, easy of transport, installation, and maintenance. The samples submitted must not weigh more than 20 kg. Complete descriptions of the cells must be forwarded by the competitors before the end of the present year to the president of the association, 3 rue de Lutèce, Paris, with drawings, and the actual cells must reach the examiners by April 1, 1907. The prize money, amounting to 8000 francs, may be awarded as a lump sum or divided at the discretion of the association.

THE Legislature of the Berne Canton has sanctioned the project for the construction of a new trunk line—the Lötschberg—with electricity as the motive power, which will pass through the Bernese Alps and connect at Brig with the Simplon. The new line will be 56 kilometres in length, of which 13½ kilometres will be tunnel. It will serve as the most direct means of communication between northern Italy and the district lying to the north and north-west of Switzerland, shorten the approach to the Simplon, and compete with the Gothard tunnel railroad. The work, which is to be begun at once, is estimated to require five and a half years to complete.

THE Australian correspondent of the *Lancet* states that the Federal Government has issued a proclamation prohibiting the importation of the microbe of hæmorrhagic septicæmia, by which it was proposed to destroy the rabbit pest, except upon the condition that the packages containing the microbes be handed unopened to the State bacteriologist of New South Wales, and retained by him unused until the Minister gives permission to use them. Under the Noxious Microbes Act of 1900 of New South Wales it will also be necessary for the State Government to pass a regulation sanctioning experiments before anything can be

done in the way of rabbit extermination. In the meantime only laboratory experiments will be carried on.

WE have received a copy of the meteorological observations made at forty-four secondary stations in the Philippine Islands during 1903. The observations are published for four-hourly intervals from 2h. a.m., and occupy 1128 large octavo pages; the records have been carefully examined under the superintendence of Father Algué. He points out that the Philippines are preeminently agricultural, and that most of the inhabitants are engaged in tilling the soil; consequently temperature, sunshine, and rain are the chief factors to be considered. Rain is the most important element, as sunshine and temperature are generally quite uniform and favourable. 1903 was a bad year for agriculture; drought was prevalent during the first half, while there was considerable rainfall during what is usually considered the dry season. Owing to the drought, the havoc wrought by locusts was terrible; time after time swarms swept over the land devouring the standing crops, and leaving the country-side bare and dreary.

WE have received a copy of the meteorological chart of the Indian Ocean and Red Sea, issued by the Meteorological Office, for September. This valuable publication gives important information for seamen, including the routes recommended, under steam and sail respectively, between several of the principal ports. The wind roses, which are drawn generally for areas of 5° of latitude by 5° of longitude, show the average conditions for the month from records extending over a period of fifty years, and the direction and rate of the ocean currents are indicated in the usual way, from the results of observations obtained during a period of sixty-five years. In addition, any facts of recent date likely to be of interest are made known, among which we may mention a telegram from the Indian Meteorological Office, dated August 10, with reference to the south-west monsoon between Aden and Bombay, and to the unusually quiet weather conditions in the Bay of Bengal.

WE learn from an article in the August number of the *Popular Science Monthly* that the Government of the United States intends to repeat so much of the triangulation of the coast and geodetic survey as lies within the area affected by the earthquake of April 18 last, and to carry the work far enough eastward to connect the re-determined points with stations that may safely be regarded as quite beyond the effect of the recent disturbance.

THE flora of New Zealand presents many exceptional features, and it has been Dr. Cockayne's service to describe various strange vegetable productions of these and adjacent islands in his charming and graphic writings. In a series of ten articles that were printed in the *Lyttelton Times* during May he has provided a general account forming an epitomised survey of the ecology of New Zealand. Discussing the history of the plants, he adduces evidence obtained from the distribution of such plants as *Veronica elliptica* in favour of a former land connection with South America. Referring to the forests, he enumerates several types, of which the filmy ferns and epiphytic lilies are extraordinary. On the shore is found the tiny buttercup *Ranunculus acaulis*, bearing only three small, succulent leaves and its small yellow flower above the sand. The arborescent speedwells and species of *Sophora* showing peculiar juvenile forms are noteworthy among the shrubs. In the mountain meadows a striking feature is the prevalence of white and yellow rather than blue flowers. *Phormium tenax*, the plant furnishing the valuable fibre

known as New Zealand flax, grows in the swamps. Finally, there are numerous plants eminently suitable for cultivation, to mention only the *Veronicas*, *Senecios*, and *Olearias*.

IN choosing bamboos for the garden it is necessary to take into consideration the power of resistance offered by different varieties to frosts. In *Le Bambou* (July) the editor, M. Lehaie, contributes some notes on the subject, quoting from his experience in Belgium. Among the hardest varieties he places *Henonis*, *Quiloi*, *viridiglaucescens*, *pubescens*, and *aurea*, all species of *Phyllostachys*, *Sasa paniculata*, and *Arundinaria Japonica*. He also provides a list of bamboos cultivated in Europe during 1906, with their synonyms. An interesting communication by Prof. F. A. Forel points to the identity of *Phyllostachys Henonis* with *Phyllostachys puberula*. Among the economic uses of bamboos, M. J. Noguès makes special reference to the pulp for the manufacture of paper.

ANOTHER pamphlet on the rubber-tree *Ficus elastica*, compiled by Mr. E. M. Coventry, of the Indian Forest Department, was recently published as Forest Bulletin No. 4 of the Government of India. The chief factor determining the distribution of the tree is said to be excessive humidity of the atmosphere. For propagation, cuttings and gooties have been given up in the plantations to which reference is made. New plants are obtained from seedlings raised in seed-beds and transferred to a forest nursery that requires to be surrounded with a stockade to keep out deer. Tapping is effected by making horizontal cuts about half round the tree with a V-shaped gouge. The excess of rubber is allowed to fall on mats placed on the ground; this and the rubber collected from the cuts and bark form three grades. Results tend to show that trees should only be tapped every second or third year.

By an Act passed in 1903, the New Zealand Institute and the Colonial Museum were placed on a new footing. In the Colonial Museum Bulletin, of which the first number has just appeared, a sketch of the history and present position of the museum is found which contains much information as to the progress made in forming a collection of Maori antiquities; it is worthy of note that the natives themselves are deeply interested in the scheme, and have made valuable donations. The number also contains an important article on the marine mollusca of New Zealand, and an excellent series of photographs of carvings and weapons recently acquired by the museum. It is unfortunate that in the mother country we are too parsimonious to spread abroad in this way the knowledge of our national treasures.

THE *Ceylon National Review*, No. 2, contains an illustrated article by Ethel M. Coomaraswamy on old Sinhalese embroidery, illustrated by a collotype plate and sketches of the different kinds of stitches employed. Nowadays specimens are rare; formerly many objects were thus decorated, especially betel bags, which have been preserved in fair numbers. The colours employed were three, red, blue, and the undyed thread; the designs were geometrical, or taken from plants or animals. Most of the work was done with the chain stitch, and the knowledge of it is now confined to the old men in out-of-the-way villages.

IN *Biologisches Centralblatt* for August 15 Dr. J. Gross concludes his paper on the relationships between heredity and variation. According to the author, there may be two lines of development, fluctuation and mutation, the three stages of the former resulting respectively in the production

of races, species, and genera, while the first stage of the latter corresponds to De Vries's and the second to Mendel's mutation. The Rev. E. Wasmann, in the second article, discusses the comparatively recent development of new species of "commensural" beetles of the family Staphilinidae in the nests of ants and termites. In the black and red beetles of the genus *Dinarda*, for example, there are races or species corresponding to the various races or species of ant with which they are associated, and as the differentiation of the ants appears to be comparatively recent, that of the beetles must, *a fortiori*, be still more so. In the third article Maria Countess von Linden describes certain very remarkable variations in the shape and colour of the wing-scales of the swallow-tail butterfly *Papilio podalirius* during the pupa-stage as the effect of external influences. It is noticeable that the scales on the orange spot differ from those of the rest of the wing. The basilar membrane in the ear of parrots, in connection with Helmholtz's resonance-theory, forms the subject of the concluding article, by Mr. A. Denker.

THE contents of Nos. 1 and 2 of vol. xxviii. of Notes from the Leyden Museum are largely devoted to the description of new genera and species, a number of these being described by Mr. G. Ulmer in a paper on non-European trichopterous insects. Of more general interest is the description, by Dr. E. D. van Oort, of a new bird-of-paradise (*Neoparadisea ruyi*) from New Guinea, representing a generic type by itself, and also Dr. Jentink's separation of the large duiker antelope of Rhodesia from the West African *Cephalophus sylvicultor*, under the name of *C. coxi*.

THE New Zealand fern-bird (*Sphenoeacus punctatus*) forms the subject of the first article, by Mr. J. C. McLean, in the July issue of the *Emu*, while in the second paper Mr. H. S. Dove gives notes on a number of New Zealand birds, inclusive of introduced species. In a later communication Mr. E. Scott contributes some interesting information with regard to Dampier's observations on Australian birds made during the voyage of 1689. Mystery attaches to the meaning of the term "gladdens," which the great navigator employed to designate certain birds associated with oyster-catchers and cormorants.

THE whole of vol. xxvii. of Notes from the Leyden Museum is occupied by Miss C. M. L. Popta's description of the fishes collected during Prof. Nieuwenhuis's expeditions to central Borneo in 1898 and 1900. The collection contained a large number of new forms, which have, however, for the most part been named in previous communications. The more important species are illustrated by photographs from original specimens.

SEASIDE natural history, illustrated with a number of excellent photographic plates (in some cases reproduced from Johnston) of zoophytes, &c., occupies a prominent position in the July issue of the *Museum Gazette*. The addition of a large education museum to the "garden city" at Letchworth is strongly advocated.

IN its report for 1905, published in the August issue of *Nature Notes*, the Selborne Society takes occasion to refer to the necessity for more active workers and larger funds if its objects are to be fully and efficiently carried out. The enclosure at Ealing for the protection of birds is reported to have been a marked success during the nesting season.

A PAPER by Mr. David Heron "On the Relation of Fertility in Man to Social Status, and on the Changes in

this Relation that have taken place during the last Fifty Years" has been published in the series of Drapers' Company Research Memoirs (Studies in National Deterioration). Mr. Heron takes as his starting point the legitimate birth-rate for the different districts in London for the years 1851 and 1901, and proceeds to calculate for each year the correlation between this and various measures of their social and economic conditions. By this method he shows conclusively that in both these years a low birth-rate is associated with satisfactory conditions and a high one with poverty and improvidence, but that in 1901 this coincidence is far more strongly marked than in 1851, and that whereas in the middle of the last century it could be more than accounted for by the fact that the wives of the upper classes marry at a later age than those of the lower, at the present time this factor is only responsible for about half the difference. It is perhaps unfortunate for Mr. Heron that his paper has appeared after two others dealing with the same subject (Newsholme and Stevenson, and G. U. Yule, *Journal of the Royal Statistical Society*, vol. lxix., part i.), as his methods are very different from, and his conclusions quite independent of, either of them. But owing to the striking way in which these three important papers confirm and supplement one another, it may be to the advantage of the public that they should have appeared in the same year, for warnings of this nature have more chance of obtaining a hearing when they are given simultaneously from different quarters.

IN the *Journal of the Franklin Institute of Philadelphia* (vol. clxii., No. 1) Mr. Clifford Richardson gives an exhaustive series of analyses of the petroleum of North America, and compares the character of those of the older and newer fields.

A VERY simple and convenient method for calibrating thermometers for use in the determination of freezing points of aqueous solutions is described by Messrs. Richards and Jackson in the *Zeitschrift für physikalische Chemie*, 1906, lvi., 362. The thermometer to be tested is immersed in a mixture of powdered ice and water contained in a Dewar vessel, and hydrochloric acid is then added until the requisite temperature has been attained. The true temperature is determined by the concentration of the acid solution in equilibrium with the ice, and this can be ascertained from the table given by the authors, in which acid concentrations corresponding to temperatures between 0° C. and -5° C. are recorded.

IN a previous measurement of the relative proportion of radium and uranium in radio-active minerals, a neutral solution of radium bromide was employed as standard. It has since been observed, however, that such neutral solutions gradually deposit some of the active substance on the walls of the containing vessel, and this has made a new determination of the proportion of radium to uranium necessary. The number now found by Rutherford and Boltwood (*American Journal of Science*, iv., 22 [127], pp. 1-3) for the quantity of radium associated with 1 gram of uranium is  $3.8 \times 10^{-7}$  gram, which is about one-half that obtained in the first experiments.

IN the *Journal of Physical Chemistry*, 1906, vol. x., p. 445, Messrs. Carveth and Magnusson give an interesting account of the evolution of the apparatus for the determination of the boiling points of solutions for the purpose of molecular weight measurements. The advantages and disadvantages of the various types are discussed, and a new form of apparatus is described, the distinctive features of

which are a separate boiling flask and a return condenser provided with a mercury trap. With this apparatus measurements can be made very quickly, and the parts liable to break are easily replaceable.

In the same journal Mr. R. C. Snowden shows that metallic lead can be electrolytically deposited in a satisfactory and adherent condition from an acidified solution of lead acetate. This result is attained by employing a rapidly rotating kathode and a virtual current density of 1.5 amperes per square decimetre, and adding about 1 gram of gelatin to a litre of the solution. In an investigation of the behaviour of ferromanganese anodes in solutions of caustic soda, Mr. G. R. White finds that permanganate is formed irrespective of the current strength and the concentration of the solution. Metallic manganese yields permanganate at high current densities, but manganous hydroxide is only oxidised to dioxide. The electrolytic formation of permanganate is therefore a direct reaction, the lower oxides not being formed as intermediate products.

WE have received from Messrs. Adam Hilger, Ltd., a copy of their "List A" of spectroscopes and spectroscopic accessories. This list contains descriptions and illustrations of the numerous specialities manufactured by the firm, and should be consulted with interest by all workers in spectroscopy. The spectroscopes, spectrographs, and accessories of especial interest are too numerous to be referred to here, but mention may be made of the fact that the firm is now prepared to supply the strips of plane parallel glass, up to 300 mm. by 40 mm., used in the Lummer and Gehrecke parallel plate spectroscope described in the *Annalen der Physik*, vols. x. (1903) and xx. (1906). These strips may be used with any ordinary spectroscope of suitable size, but the firm will be pleased to quote prices for specially designed instruments.

THE new edition of the Japanese Pharmacopœia, which has been in preparation for some considerable time, has now been completed, and will be issued shortly. Among the alterations in it is the substitution of Japanese characters for the names of drugs and chemicals for the Chinese forms hitherto used.

A NEW magazine, entitled the *University Digest*, is announced for publication by the University Research Extension of Chicago. Its aim (to quote from the prospectus issued) is "to keep before its readers the ideal phenomena that distinguish the modern, the greatest of world-epochs," and the intention of its promoters is to represent the results of scientific research in religion, philosophy, and the social and natural sciences. The periodical will be issued at monthly intervals from September next, excluding the months of July and August.

THE Proceedings and Transactions of the Nova Scotian Institute of Science for the session 1903-4, just received, contains many papers of value. The address of the president—Dr. H. S. Poole—dealt with the progress of the institute and the application of science to mining, and among other communications in the volume we notice the following:—the earthquake of March 21, 1904, in Nova Scotia, by Prof. J. E. Woodman; swim bladder of fishes a degenerate gland, by Prof. E. E. Prince; and determination of elements of terrestrial magnetism at Halifax, Nova Scotia, August, 1904, by Prof. S. M. Dixon.

THE official year-book of New South Wales for 1904-5 has just reached us. It is edited by Mr. W. H. Hall, acting statistician to the State of New South Wales, and

is a mine of information, containing as it does papers on the discovery of "Terra Australis," the physical configuration, the geological formation, the meteorology, vegetation, timbers of commercial importance, fish and fisheries, and fauna of New South Wales, besides much information of statistical importance. The volume is illustrated by some twenty-eight well-executed figures, and should be seen by all who are specially interested in the State under review.

THE twenty-sixth annual report of the Manchester Microscopical Society, which has just been issued, tells of continued progress. The address on precious corals delivered by Prof. S. J. Hickson, F.R.S., as president, is to be found in the volume, as is also an illustrated paper by Mr. M. L. Sykes on animal coloration.

THE seventh annual report of the Museum and Art Gallery of Plymouth is of an encouraging nature. During the year ending with March last many interesting additions were made; the public lectures on subjects connected with the work of the museum were, it is stated, on the whole decidedly successful. The museum and gallery were visited during the period under review by 30,760 persons.

A NEW (the second) edition of "The Geology of the English Lake District, with Notes of the Minerals," by Mr. J. Postlethwaite, has just been issued by G. and T. Coward, Carlisle. The little book has been revised and additional lists and plates of fossils have been added, and the section on the Mollusca of the Skiddaw slates has been rearranged.

THE current number of the *Monthly Magazine* contains a very readable account, by Mr. H. W. Strong, of the evolution of the turbine, entitled "The Coming of the Turbine"; it has also an interesting paper by Mr. A. W. Rees on a moorland sanctuary.

### OUR ASTRONOMICAL COLUMN.

#### ASTRONOMICAL OCCURRENCES IN SEPTEMBER:—

- Sept. 1. 14h. 42m. to 15h. 46m. Moon occults  $\alpha$  Aquarii (mag. 4.3).  
 2. 15h. Saturn in conjunction with Moon. Saturn  $0^{\circ} 34' N.$   
 4. 13h. Mercury in conjunction with Mars. Mercury  $0^{\circ} 10' S.$   
 „ 15h. Saturn in opposition to the Sun.  
 8. Predicted date of perihelion passage of Finlay's comet.  
 9. 14h. 27m. to 14h. 43m. Moon occults  $\alpha$  Tauri (Aldebaran, mag. 1.1).  
 10. 10h. 47m. Minimum of Algol ( $\beta$  Persei).  
 „ Vesta  $\frac{1}{2}^{\circ} N.$  of star 105 Aquarii (mag. 4.7).  
 11. Vesta (mag. 6.5) in opposition to the Sun.  
 15. Venus. Illuminated portion of disc =  $0.514$ ; or Mars =  $0.989$ .  
 16. Saturn. Major axis of outer ring =  $44'' 33$ , minor axis =  $4'' 15$ .  
 20. 10h. Venus at greatest elongation,  $46^{\circ} 29' E.$   
 23. 11h. Sun enters Libra, Autumn commences.  
 29. 11h. 29m. Transit (egress) of Jupiter's Sat. III. (Ganymede).  
 30. 12h. 30m. Minimum of Algol ( $\beta$  Persei).

DISCOVERY OF A NEW COMET (1906e).—A telegram from the Kiel Centralstelle announces the discovery of a new comet by Herr Kopff at the Königstuhl Observatory on August 22.

Its position at 14h. 17m. (Königstuhl M.T.) on the day of discovery was R.A. =  $22^{\text{h}} 49^{\text{m}} 32^{\text{s}}$ , dec. =  $+10^{\circ} 23'$ , and the amount of its daily movement was found to be  $-44s.$  in R.A. and  $-2'$  in declination. Unfortunately no idea of the comet's brightness is given.